

IN THE CLAIMS

Please amend the claim as follows:

1. (Currently Amended) A semiconductor optical amplifier (SOA) module apparatus for amplifying an optical signal received from an input optical fiber, and transmitting the amplified optical signal to an output optical fiber, comprising:

a semiconductor optical amplifier (SOA) for configured to amplifying an optical signal applied to its own first stage, to outputting the amplified optical signal at its own second stage, and to outputting an ASE (Amplified Spontaneous Emission) light at the first stage;

a first monitor photo-diode;

an input unit having a first isolator which that is configured to transmits an input optical signal to the first stage of the SOA, to controls separate the ASE light received from the first stage of the SOA to separate it from a traveling path of the input optical signal at a prescribed angle, and to transmits the ASE light separated from the traveling path through the first isolator and to the first monitor photo-diode, wherein ;

a—the first monitor photo-diode for—is configured to receiving, and detecting a power level of, the ASE light passing through the first isolator; and

an output unit for configured to convergeing the amplified optical signal received from the SOA onto one end of the output optical fiber.

2. (Currently Amended) The apparatus as set forth in claim 1, wherein the input unit includes:

a first collimating lens system ~~for-configured to faceing~~ one end of the input optical fiber, and ~~to~~ collimate~~ing~~ the optical signal;

a first glass window ~~for-configured to transmitting to the first isolator~~ the optical signal collimated at the first collimating lens system ~~to the first isolator~~; and

a first convergence lens system; being disposed between the first isolator and the first stage of the SOA, ~~for-being configured to convergeing~~ the optical signal received from the first isolator onto the first stage of the SOA, and being configured to outputting to the first isolator the ASE light emitted from the first stage of the SOA ~~to the first isolator~~.

3. (Currently Amended) The apparatus as set forth in claim 1, further including a controller being communicatively connected with the first photo diode and being configured ~~for~~ ~~to determineing~~ a power level of the optical signal as a function of the detected power level of the ASE light.

4. (Currently Amended) The apparatus as set forth in claim 1, further comprising:

a second monitor photo-diode ~~for-configured to detecting~~ an uncoupled optical signal ~~which is emitted from the output unit without being transmitted to the one end of the output optical fiber.~~

5. (Currently Amended) The apparatus as set forth in claim 1, wherein the output unit includes:

a ~~second-first~~ collimating lens system ~~for-configured to collimate~~ing the amplified optical signal received from the second stage of the SOA;

a second isolator ~~for-configured to transmitting~~ the amplified optical signal received from the second collimating lens system, ~~to separate~~ controlling a partially-uncoupled optical signal to separate it from a traveling path of the amplified optical signal at a prescribed angle, and ~~to~~ transmitting the uncoupled optical signal separated from the traveling path;

a ~~second-first~~ convergence lens system ~~being disposed for-to converge~~ing the amplified optical signal received from the second isolator onto one end of the output optical fiber; and

~~a first glass window being disposed between the second isolator and the second convergence lens system, a second glass window being configured to for-transmitting~~ the collimated amplified optical signal to the second convergence lens system.

6. (Currently Amended) The apparatus as set forth in claim 5, further comprising a second monitor photo-diode ~~for-configured to receiving~~ and detecting a power level of the separated partially-uncoupled optical signal.

7. (Currently Amended) The apparatus as set forth in claim 6, further including a controller ~~being~~ communicatively connected with the second monitor photo-diode and ~~being~~ configured ~~for-to determine~~ing a power level of the amplified optical signal received from the second stage based on the detected power level of the separated partially-coupled optical signal.

8. (Currently Amended) The apparatus as set forth in claim 7, wherein the separation of the optical signal is performed by refracting the optical signal.

9. (Currently Amended) The apparatus as set forth in claim 7, wherein the controller is configured for to determine, as a function of the detected power level of the ASE light, a power level of the optical signal before amplification by the SOA.

10. (Currently Amended) The apparatus as set forth in claim 1, wherein the output unit includes:

a second-first collimating lens system for configured to collimate the amplified optical signal received from the second stage of the SOA;

a second-first convergence lens system for configured to converge the amplified optical signal collimated by the second collimating lens system onto one end of the output optical fiber;

a second isolator being disposed between the second collimating lens system and the second convergence lens system, a second isolator for being configured to transmitting the amplified optical signal received from the second collimating lens system to the second convergence lens system, and being configured to cutting off optical signals received from the second convergence lens system; and

a second-first glass window being disposed between the second isolator and the second convergence lens system, for being configured to transmitting the amplified optical signal received from the second isolator to the second convergence lens system, and being configured to reflecting a partially-uncoupled optical signal and to separate it from the traveling path of the amplified optical signal at a prescribed angle.

11. (Currently Amended) The apparatus as set forth in claim 10, further comprising a second monitor photo-diode ~~for-configured to receiving~~ and detecting a power level of the reflected partially-uncoupled optical signal.

12. (Currently Amended) The apparatus as set forth in claim 11, further including a controller being communicatively connected with the second monitor photo-diode and being configured ~~for-to~~ determining a power level of the amplified optical signal received from the second stage based on the detected power level of the reflected partially-uncoupled optical signal.

13. (Currently Amended) The apparatus as set forth in claim 12, wherein the controller is configured ~~for-to~~ determining, as a function of the detected power level of the ASE light, a power level of the optical signal before amplification by the SOA.

14. (Currently Amended) A semiconductor optical amplifier (SOA) module apparatus for amplifying an optical signal received from an input optical fiber, and transmitting the amplified optical signal to an output optical fiber, comprising:

a semiconductor optical amplifier (SOA) having a first stage and a second stage, the SOA ~~for-being configured to amplifying~~ an optical signal applied to the first stage, to outputting the amplified optical signal at the second stage, and to outputting an ASE (Amplified Spontaneous Emission) light at the first stage;

a first monitor photo-diode;

an input unit which-having a first isolator that is configured to transmits an input optical signal to the first stage of the SOA, and to separate controls the ASE light received from the first

stage of the SOA to ~~separate it from~~ a traveling path of the input optical signal at a prescribed angle, and to transmits the ASE light separated from the traveling path through the first isolator and to the first monitor photo-diode, wherein;

— a the first monitor photo-diode for ~~is configured to receive~~ing, and detecting a power level of, the separated ASE light;

an output unit ~~for~~ configured to convergeing the amplified optical signal received from the SOA onto one end of the output optical fiber; and

a controller being in communicative connection with the first monitor photo-diode, the output unit, and the SOA, and being configured ~~for~~ to regulateing a level of amplification of the SOA.

15. (Currently Amended) The apparatus as set forth in claim 14, wherein the controller is configured ~~for~~ to determineing a power level of the optical signal as a function of the detected power level of the ASE light.

16. (Currently Amended) The apparatus as set forth in claim 14, further comprising:
a second monitor photo-diode ~~for~~ configured to detecting an uncoupled optical signal which ~~is~~ emitted from the output unit without being transmitted to the one end of the output optical fiber.

17. (Currently Amended) The apparatus as set forth in claim 14, wherein the ~~input unit~~ includes a first isolator ~~for~~ is configured to transmitting the input optical signal to the first stage, and wherein the output unit includes:

a second ~~first~~ collimating lens system ~~for~~ configured to collimating the amplified optical signal received from the second stage of the SOA;

a second isolator ~~for~~ configured to transmitting the amplified optical signal received from the second collimating lens system, ~~to separate~~ controlling a partially-uncoupled optical signal to separate it from a traveling path of the amplified optical signal at a prescribed angle, and ~~to~~ transmitting the uncoupled optical signal separated from the traveling path;

a second ~~first~~ convergence lens system being disposed for ~~to~~ converge~~ing~~ the amplified optical signal received from the second isolator onto one end of the output optical fiber; and

~~a first glass window being disposed between the second isolator and the second convergence lens system, a second glass window~~ the second glass window being configured to ~~for~~ transmitting the collimated amplified optical signal to the second convergence lens system.

18. (Currently Amended) The apparatus as set forth in claim 17, further comprising a second monitor photo-diode ~~for~~ being configured to receive~~ing~~ and detecting a power level of the separated partially-uncoupled optical signal.

19. (Currently Amended) The apparatus as set forth in claim 18, wherein the controller is configured ~~for~~ to determine~~ing~~ a power level of the amplified optical signal received from the second stage based on the detected power level of the separated partially-coupled optical signal.

20. (Currently Amended) The apparatus as set forth in claim 19, wherein the separation of the optical signal is performed by refracting the optical signal.